



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/982,227	10/17/2001	Dmitri E. Nikonov	42390.P10601	7399

7590 05/06/2005

Jan Carol Little  
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP  
Seventh Floor  
12400 Wilshire Boulevard  
Los Angeles, CA 90025

EXAMINER

WONG, ERIC K

ART UNIT PAPER NUMBER

2883

DATE MAILED: 05/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/982,227

Applicant(s)

NIKONOV ET AL.

Examiner

Eric Wong

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

RCE

- 1) ☒ Responsive to communication(s) filed on 30 December 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10, 15, 17, 18 and 21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 15, 17, 18 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/30/04 has been entered.

### ***Response to Arguments***

2. Applicant's arguments, filed 12/30/04, with respect to claims 1 and 7 have been fully considered and are persuasive. The previous rejection of said claims has been withdrawn. It is respectfully noted however that evanescent couplers are well known and commonly used in the art of optical coupling.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7-10, 15, and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent Number 6,434,175 to Zah., and further in view of United States Patent Number 5,459,801 to Snitzer.

As to claim 7, Zah discloses in figure 1, a semiconductor optical device comprising:

An integrated optical circuit having:

A set of optical amplifiers (118) formed in the integrated optical circuit being silica based (column 1, line 45) and coupled to the input waveguide elements; and

An arrayed waveguide grating (AWG) formed in the integrated optical circuit and coupled to the set of optical amplifiers (320);

A set of waveguide elements coupled to outputs of the set of optical amplifiers; and

The AWG having a star coupler coupled to the waveguide elements (column 6, line 61).

As to claims 8, and 9, the AWG is coupled to a set of optical amplifiers via a set of input/output waveguide elements.

As to claim 10, it would be inherent that an optical amplifier connected to waveguide elements would have a gain portion.

As to claim 15, each amplifier is made of varying lengths to compensate for the AWG (each amplifier operates on a specific free spectral range and tuned for a predetermined output).

As to claims 17-18, the set of optical amplifiers are coupled to combine pump light and optical signal light (components 310 are coupled to components 118).

However, Zah fails to explicitly disclose an optical amplifier having an evanescent coupler to combine pump light with optical signal light. It is respectfully noted that using evanescent couplers are commonly used in the optical communications art.

Snitzer discloses an amplifier having an evanescent coupler to combine pump light with optical signal light (figure 9).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the evanescent coupler of Snitzer in Zah in order to minimize the size

Art Unit: 2883

of the components and to efficiently couple signal light to pump light with minimal optical coupling losses.

5. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zah in view of Snitzer as applied to claim 7 above and in further view of United States Patent Number 6,137,939 to Henry et al.

Zah in view of Snitzer discloses an integrated optical waveguide device with an arrayed waveguide grating formed in the integrated circuit, but fails to explicitly disclose a varying shape and width of the waveguide

Henry discloses an arrayed waveguide grating which has widths that vary in order to provide the most optimum performance in an arrayed waveguide grating (Column 3, line 36). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to vary the width of the waveguide to achieve optimum performance of a planar optical waveguide.

6. Claims 1-6 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zah in view of Snitzer.

As to claims 1 and 2, Zah discloses an integrated optical circuit with a set of amplifiers and AWGs, but fails to explicitly disclose a set of transceivers to couple a set of optical channels into an optical fiber that is input to the integrated circuit.

The use of transceivers is widely known in the art for transmitting, receiving or processing signals and that an optical fiber would be required to send such a signal to a device.

Art Unit: 2883

It would be obvious to one skilled in the art at the time the invention was made that a set of transceivers coupled to an optical fiber would be required to process and transmit signals in the optical communications system of Zah.

As to claim 3, rejection is based on same reasons given above for claim 13.

As to claim 4, rejection is based on same reasons given above for claim 10.

As to claim 6, a set of optical signals are demultiplexed and multiplexed in the integrated circuit (Abstract).

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zah in view of Snitzer as applied to claim 1 above, and further in view of common practice in the art.

Zah in view of Snitzer discloses an integrated optical waveguide multiplexing device, but fails to explicitly disclose a demultiplexer coupled to an AWG.

It is common practice in the DWDM art to demultiplex signals that have been multiplexed in order to properly route and transmit optical signals.

It would have been obvious to one having ordinary skill at the time the invention was made to couple a demultiplexer to the multiplexer of Zah in view of Snitzer in order to efficiently and properly route and transmit optical signals of a DWDM system.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Wong whose telephone number is 571-272-2363. The examiner can normally be reached on Monday through Friday, 830AM - 430PM.

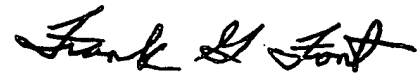
Art Unit: 2883

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



EW



Frank G. Font  
Supervisory Patent Examiner  
Technology Center 2800